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MEMORANDUM

TO: James Capp

FROM: Jeff Larson, Elizabeth Booth, Gigi Steele, Audra Dickson

RE: NPDES Permitting Strategy for Addressing Ammonia Toxicity, the 2013 Ammonia Toxicity Criteria for Domestic and Non-domestic Industrial Wastewater Treatment Plants

On August 22, 2013, EPA published national recommended ambient water quality criteria for the protection of aquatic life from effects of ammonia in freshwater. These new criteria are meant to protect mussels from ammonia toxicity. Ammonia toxicity varies based on pH and temperature; as temperature and pH increase, organisms become more sensitive to ammonia.

The recommended ammonia criteria apply to all freshwaters for the protections of both freshwater mussels and snails. Freshwater mussels are highly sensitive to ammonia toxicity and represent the most sensitive species in the dataset for criteria recommendations. Both mussels and snails are important to the environment because they serve as food sources for other organisms in the food web and provide vital services in improving and maintaining water quality. Mussels are filter feeders and can filter nutrients, toxics, and other pollutants out of the water. Snails feed on organic debris reducing the effects of eutrophication and keep bottom substrates clean for other benthic organisms.

States have the discretion to adopt these criteria or, where appropriate, other scientifically defensible water quality criteria different from these national recommendations. Water quality criteria can be either narrative or numeric. Numeric criteria need to be scientifically derived values that protect aquatic life or human health from the toxic effects of pollutants in ambient water. The Watershed Protection Branch's (WPB) intent is not to adopt the numeric ammonia criteria, but to implement it through the narrative toxicity criteria, the wasteload allocation (WLA) process, and instream monitoring. EPD's narrative toxicity criteria are given in the Georgia Rules, 391-3-6-.03(5)(e) (hereinafter Rules). "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." This approach is protective of aquatic life since permits must have water quality based limits that consider the effects of critical pH and critical temperature, and instream monitoring will allow GA EPD to determine if the narrative toxicity criteria for mussels are being met.

The instream ammonia criteria will be implemented in NPDES permits that have the potential to discharge at levels of concern. Ammonia Reasonable Potential Analysis will be conducted on NPDES wastewater discharges. The analysis will be based on the data provided in the permit application.

If there is reasonable potential for a domestic NPDES permit holder to discharge at levels of concern, the following table provides the WPB permitting strategy for complying with the 2013 ammonia criteria:

Table 1 Summary of Domestic NPDES Permit Strategy for Addressing Ammonia in State Waters

Point Source Applicant		Strategy
Category 1	NPDES domestic and privately owned permits already contain ammonia limits that comply with 2013 criteria.	Reissue the NPDES permit with the current ammonia limit.
Category 2	NPDES domestic and privately owned permits that contain ammonia limits that DO NOT comply with 2013 criteria. However, the facility can meet the 2013 criteria based on demonstrated performance.	Reissue the NPDES permit with an ammonia limit that complies with 2013 criteria.
Category 3	Major (i.e., permitted monthly flow of 1 MGD and greater) and minor (i.e., permitted monthly flow of 0.5 MGD up to 1 MGD) NPDES domestic and privately owned permits that contain ammonia limits that DO NOT comply with 2013 criteria.	Reissue the NPDES permit to comply with the 2013 criteria and include a compliance schedule.
Category 4	Minor domestic and privately owned NPDES permitted facilities with permitted monthly flows less than 0.5 MGD that contain ammonia limits that DO NOT comply with 2013 criteria.	Maintain the effluent ammonia limitation in the reissued NPDES permit along with an upstream and downstream monitoring requirement. If data indicates there is a problem with water quality then reissue or modify NPDES permit with an ammonia limit that complies with the 2013 criteria and include a compliance schedule.
Category 5	Domestic or privately owned NPDES permitted facilities that DO NOT have ammonia limits.	Ensure effluent ammonia monitoring is included in the reissued individual NPDES permit. As resources allow and as permits are coming up for reissuance, <u>EPD</u> will conduct instream monitoring upstream and downstream of the facility. If data indicates a problem with the narrative toxicity criteria for mussels then, based on a priority consideration regarding water quality impact, reissue or modify NPDES permits with an ammonia limit that complies with 2013 criteria and include a compliance schedule.

For new domestic facilities, or domestic facilities proposing to increase their wasteloads that have the potential to discharge ammonia at levels of concern, the 2013 national ammonia criteria will be implemented in the development of the WLA.

For existing non-domestic (industrial process, non-process or stormwater wastewater) NPDES permits that have a reasonable potential (see attached permit “Ammonia Reasonable Potential Analysis Procedures for NPDES Permits, as amended) to discharge ammonia at levels of concern based on the permittees calculated in-stream concentration, WPB will ensure monitoring or effluent limits are included in permits that comply with the 2013 criteria. For non-domestic NPDES permitted facilities whose discharge already complies with 2013 criteria, the WPB will reissue permits based on categories 1 and 2 above. For those non-domestic NPDES permitted facilities that do not have ammonia limits or they have limits that do not comply with the 2013 criteria, the WPB will reissue non-domestic NPDES permits with ammonia limits that comply with 2013 criteria and include compliance schedules, if necessary. For new non-domestic facilities, or existing non-domestic facilities proposing to increase their load that have the potential to discharge ammonia at levels of concern, the 2013 ammonia criteria will be implemented based on the calculated instream concentration. Federal facilities that only discharge treated domestic wastewater and have the reasonable potential to discharge ammonia at levels of concern will adhere to categories 1-5 above, with the table’s domestic permitted flow criteria replaced by actual average facilities monthly flows (calculated over the most recent 12 month period).

GA EPD will consider a permittee’s request to use the flexibilities outlined in EPA’s “Flexibilities for States Applying EPA’s Ammonia Criteria Recommendations” (EPA-820-F-13-001), document (attached), when addressing ammonia limits. These flexibilities include:

- **Compliance schedules:**
 - Compliance schedules will be used in permits when appropriate in accordance with the Rules 391-3-6-.06(10).
- **Dilution Allowances:**
 - Permit limits will be determined based on dilution allowances using the chronic criteria and the 30Q3 streamflow, which assumes complete mixing in a reasonable and limited mixing zone in accordance with the Rules 391-3-6-.03 (10).
- **Recalculation procedure based on site specific species:**
 - The Recalculation Procedure will be available and involves editing the composition of species used to derive a site-specific aquatic life criterion to better reflect the taxonomy of species that reside at the site. Details on the procedure can be found in EPA’s document, “Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria” (EPA-823-R-13-001). Attached is sample NPDES permit language for both municipal and industrial facilities that may choose to pursue the recalculation procedure. The permit language is provided as part of the permitting procedure so permittees can understand how these issues (compliance schedules and recalculation procedures) would be addressed in the permit. EPD recognizes that compliance schedules that are different from the sample schedule may be appropriate based on the specific circumstances of the permittee. EPD will work with permittees during permitting process to determine if a different schedule is appropriate.
- **Variances:**
 - GA Rules 391-3-6-.03(2)(f) allow the State the ability to grant temporary variances to a water quality standard. The variance for an individual discharger can be for a specific pollutant in a specific waterbody. Variance demonstration would likely be based on 40 CFR 131.10(g)(6), which allows a use to be removed where the implementation of water quality-based controls would result in substantial and widespread economic and social impact.

- **Revision to Designated Uses:**

- GA Rules 391-3-6-.03(2)(e) allow the State the ability to remove a designated use through a use attainability analysis, when the designated use is not attainable and the implementation of water quality-based controls would result in substantial and widespread economic and social impact.

The following documents are attached as part of this NPDES Permitting Strategy for Addressing Ammonia Toxicity:

- Flexibilities for States Applying EPA's Ammonia Criteria Recommendations (EPA-820-F-13-001)
- Ammonia Reasonable Potential Analysis Procedure for NPDES Permits, May 2017
- Example Reasonable Potential Analysis Worksheet
- Sample Permit Conditions Ammonia Compliance Schedule and Recalculation Procedure – Industrial
- Sample Permit Conditions Ammonia Compliance Schedule and Recalculation Procedure – Municipal